



FACT SHEET

DART Buoy Technology for Tsunamis and Other Coastal Hazards

What is DART?

DART refers to Deep-ocean Assessment and Reporting of Tsunamis, a monitoring system that is used to detect, measure, and

D. Mckimie, NOAA

NOAA's DART II system includes a surface buoy and bottom pressure recorder to provide timely information used to detect, measure, and report the presence of tsunamis. report the presence of tsunamis. The U.S.-designed system includes two components: (I) a bottom pressure recorder (BPR) that sits on the seafloor bottom to measure differences in water pressure, and (2) a companion surface buoy for real-time satellite communications. An acoustical link then transmits data from the BPR on the seafloor to the surface buoy. DART is the sensor and platform technology on which the US tsunami warning system is based.

DART data, along with data from seismometers and tide gauges, is processed through a forecast model that provides the information to tsunami warning centers to issue alerts and warnings—or to cancel them. This deep

ocean sensor capability is used to improve quality assurance and reliability of a the warning system, reduce the risks of false alarms, and provides much longer warning lead times as compared to relying on a network of sea level gauges alone.

DART II is the current generation of DART technology. It allows for two-way communications with the buoy and sensor so that system operators can access more timely information. A smaller scale version of the DART II system, DART II Easy-to-Deploy (ETD), is now being tested and is nearly operational. It is inexpensive, vandal resistant, and requires no special equipment to deploy.









For more information on DART systems contact

Eddie Bernard

National Oceanic and Atmospheric Administration (NOAA) Eddie.n.bernard@noaa.gov

David McKinnie

National Oceanic and Atmospheric Administration (NOAA) David.mckinnie@noaa.gov

US IOTWS Program Contacts

Orestes Anastasia

US IOTWS Program Manager USAID Regional Development Mission/Asia 93/I Diethelm Towers A. 10th Floor Bangkok, 10330 Thailand Tel: +66-2-263-7468 oanastasia@usaid.gov

Dr. Alan White

US IOTWS Program Integrator (Contractor) Charter Square Building, Unit 1802 152 N. Sathorn Road, Bangrak Bangkok, 10500 Thailand Tel: +66-2-637-8518 alan.white@ttemi.com

Where are DART

How will DART technology be transferred under the US **IOTWS** program?

Under the US IOTWS program, NOAA and its

partners will provide a range of technology transfer support for DART systems including siting of DART systems in the Indian Ocean region, deployment, standards, and operation and maintenance requirements. This support will primarily be provided through the DART Operators Workgroup, which is part of the Intergovernmental Coordination Group under the Intergovernmental Oceanographic Commission (IOC).

DART Mooring System

Optional Sensors

Barometric Pressu

Conductivity

Air Temperature/

Relative Humidity

Seasurface Temp &

GPS Antenna (2 each)

2.5 m Disk Buoy

Swivel

1/2" Chain (5 m)

U.S. Contribution to the **Indian Ocean**

System

Tsunami Warning

At this time, the US envisions deploying a DART system in the Indian Ocean region to offer demonstration and training opportunities. In addition, the US IOTWS Program Team will host technical exchange workshops in the United States to discuss various DART-related O&M issues.

For more information on the US DART System Program please visit:

http://www.pmel.noaa.gov/tsunami/Dart/

systems located?

DART systems are strategically deployed near regions with a history of tsunami generation, to ensure measurement of the waves as they move towards threatened coastal communities and to acquire data critical to real-time forecasts. There are currently 10 DART systems in the Pacific Ocean.

About the US Indian Ocean Tsunami Warning System (IOTWS) Program

The US IOTWS Program is part of the international effort to develop tsunami warning system capabilities in the Indian Ocean following the December 2004 tsunami disaster. The US program adopts an "end-to-end" approach—addressing regional, national, and local aspects of a truly functional warning system—along with multiple other hazards that threaten communities in the region. In partnership with the international community, national governments, and other partners, the US program offers technology transfer, training, and information resources to strengthen the tsunami warning and preparedness capabilities of national and local stakeholders in the region. For more information please visit www.iotws.org.

U.S. Agency for International Development www.usaid.gov